IN THE CLAIMS

1. (Currently amended) A therapeutic method for ~~a human~~ increasing cardiac output in a subject, the method comprising: ~~decreasing the systemic vascular resistance by~~ ~~having for a long-term period an implantable arteriovenous shunt device~~ creating a fistula between [[an]] a systemic artery and a systemic vein of said ~~human~~ subject , said ~~shunt~~ fistula ~~having a~~ adapted to allow blood flow rate therethrough ~~through said shunt device~~ of at least 5 ml/min ~~after said implantation~~ , wherein said blood flow through the fistula bypasses the peripheral microcirculation, and wherein creation of said fistula results in an increase in the cardiac output in said subject .

2. (Currently amended) The method as set forth in claim 1, wherein said artery ~~is an aorta~~ and said vein ~~is an inferior vena cava~~ are selected from the group consisting of iliac artery and vein, femoral artery and vein, axillary artery and vein, and subclavian artery and vein.

3. (Currently amended) The method as set forth in claim 1, wherein said method is used to treat a ~~respiratory or cardio-respiratory therapy~~ condition selected from the group consisting of a respiratory condition, a circulatory condition, and a cardiac condition.

4. (Currently amended) The method as set forth in claim [[3]] 1 , wherein said method decreases systemic vascular resistance ~~respiratory or cardio-respiratory therapy is based on an increase of the partial pressure of O2 dissolved in the arterial blood plasma, in increase in the hemoglobin O2 saturation in arterial or venous blood, or an increase of the O2 concentrations in arterial or venous blood~~ .

5. (Currently amended) The method as set forth in claim 1, wherein ~~said method is a cardiac therapy~~ the creation of the fistula is provided by implanting a shunt between a systemic artery and a systemic vein of said subject.

6. (Currently amended) The method as set forth in claim 5, wherein said ~~cardiac therapy is based on an increase of the cardiac output~~ shunt has a cross sectional area of about 19 mm^2 to about 750 mm^2 .

7. (Currently amended) The method as set forth in claim [[1]] 5 , wherein said ~~method is a circulatory therapy~~ shunt has a length of about 2.5 mm to about 15 mm.

8. (Currently amended) The method as set forth in claim [[7]] 5 , wherein said ~~circulatory therapy is based on a decrease of the pulmonary arterial blood pressure, a decrease of the systemic arterial blood pressure, a decrease of the systemic systolic pressure or a decrease of the systemic diastolic pressure~~ shunt has a radius of about 2.5 mm to about 15 mm .

9. (Currently amended) The method as set forth in claim [[1]] 5 , ~~further comprising controlling said blood flow rate through said shunt device at a blood flow rate level or range~~ wherein the interior surface of the shunt comprises a coating to prevent clot formation or atheroma formation .

10. (Currently amended) The method as set forth in claim [[9]] 5 , ~~wherein said controlling further comprises sensing and using physiological parameters, wherein said physiological parameters are blood pressure, heart rate, cardiac output, paO2, O.sub.2 saturation, O.sub.2 saturation, mean systemic arterial pressure or mean systemic venous pressure~~ the method further comprising the step of controlling the flow rate through said shunt .

11. (Currently amended) The method as set forth in claim [[1]] 10 , further comprising self-adjusting said blood flow rate through said shunt at a predetermined blood flow rate level or range by having said shunt device capable of self-adjusting its cross sectional area or its length, or both, as a function of the pressure difference across said shunt device.

12. (Currently amended) The method as set forth in claim 1, wherein said ~~shunt device is implantable~~ fistula is created via an open surgical procedure, a minimally invasive surgical procedure, or an intravascular procedure.

13. (Currently amended) An apparatus for ~~therapy in a human~~ increasing cardiac output in a subject , the apparatus comprising: a long-term implantable arteriovenous shunt device shaped and adapted for placement between [[an]] a systemic artery and a systemic vein in said subject ~~human to decrease the systemic vascular resistance, wherein the cross sectional area and the length of the lumen of said shunt device are selected to having a blood flow rate through said shunt device of at least 5 ml/min after said implantation~~.

14. (Currently amended) The apparatus as set forth in claim 13, wherein said artery ~~is an aorta~~ and said vein ~~is an inferior vena cava~~ are selected from the group consisting of iliac artery and vein, femoral artery and vein, axillary artery and vein, and subclavian artery and vein.

15. (Original) The apparatus as set forth in claim 13, wherein said cross sectional area is in the range of about 19 mm^2 to about 750 mm^2.

16. (Original) The apparatus as set forth in claim 13, wherein said length is in the range of about 2.5 mm to about 15 mm.

17. (Currently amended) The apparatus as set forth in claim 13, wherein the cross sectional area of the shunt device has a radius [[is]] in the range of about 2.5 mm to about 15 mm.

18. (Original) The apparatus as set forth in claim 13, further comprising a control means to control said blood flow rate through said shunt at a blood flow rate level or range.

19. (Original) The apparatus as set forth in claim 18, wherein said control means comprises one or more sensors to sense said blood flow rate or the pressure difference across said shunt device.

20. (Original) The apparatus as set forth in claim 18, wherein said control means comprises one or more flow control elements.

21. (Original) The apparatus as set forth in claim 13, wherein said shunt device is a self-adjustable shunt device to self-adjust its cross sectional area or its length, or both, as a function of the pressure difference across said shunt device to automatically control said blood flow rate through said shunt at a predetermined blood flow rate level or range.

22. (Original) The apparatus as set forth in claim 13, wherein the inner wall of said shunt device has a coating to prevent clot formation or atheroma formation.

23. (New) The method as set forth in claim 1 wherein said systemic artery and said vein are proximal of the renal arteries.

24. (New) The method as set forth in claim 1 wherein said systemic artery and said vein are distal of the renal arteries.

25. (New) The apparatus as set forth in claim 13 wherein said shunt is shaped and adapted for placement between said systemic artery and said systemic vein proximal of the renal arteries.

26. (New) The apparatus as set forth in claim 13 wherein said shunt is shaped and adapted for placement between said systemic artery and said systemic vein distal of the renal arteries.

27. (New) A therapeutic method for increasing cardiac output in a subject, the method comprising: implanting an arterio-venous shunt device between a systemic artery and a

systemic vein of said subject, wherein said shunt device is shaped and adapted to allow blood flow rate therethrough of at least 5 ml/min, wherein said blood flow through the shunt device bypasses the peripheral microcirculation, and wherein implantation of said shunt device results in an increase in the cardiac output in said subject.

18. (New) The therapeutic method as set forth in claim 27, wherein the flow rate is in the range from 5 ml/min to 5000 ml/min.

29. (New) The therapeutic method as set forth in claim 27, wherein said shunt device has a cross-sectional area in the range from 3 mm^2 to 3000 mm^2.

30. (New) The therapeutic method as set forth in claim 27, wherein the shunt device has a size selected to provide a flow which will maintain said subject's heart rate below 170 beats per minute.

31. (New) The therapeutic method as set forth in claim 27, wherein flow through the shunt is controlled by a one-way valve that opens with a differential pressure in the range from 50 mmHg to 130 mmHg.

32. (New) The therapeutic method as set forth in claim 27, wherein the blood flow increases PaO_2 by at least 10% compared to PaO_2 prior to the shunt implantation.

33. (New) The therapeutic method as set forth in claim 27, wherein said artery and said vein are selected from the group consisting of, iliac artery and vein, femoral artery and vein, axillary artery and vein, and subclavian artery and vein.

34. (New) The therapeutic method as set forth in claim 27 wherein said systemic artery and said systemic vein are proximal of the renal arteries.

35. (New) The therapeutic method as set forth in claim 27 wherein said systemic artery and said systemic vein are distal of the renal arteries.